

Group 9 Service Brakes

GENERAL: This group contains information on the coach service brakes from the brake pedal to the brake shoes at each wheel. It includes the master cylinder, booster cylinders, wheel cylinders, and associated hydraulic lines and fittings.

SPECIFICS: As applicable

- ...Booster Cylinders
- ...Brake Pedal
- ...Brake Shoes
- ...Hydraulic Lines, Tees, and Fittings
- ...Master Cylinder
- ...Warning Switch
- ...Wheel Cylinders



FMC Corporation
Motor Coach Division
333 Brokaw Road Box 664 Santa Clara California 95052

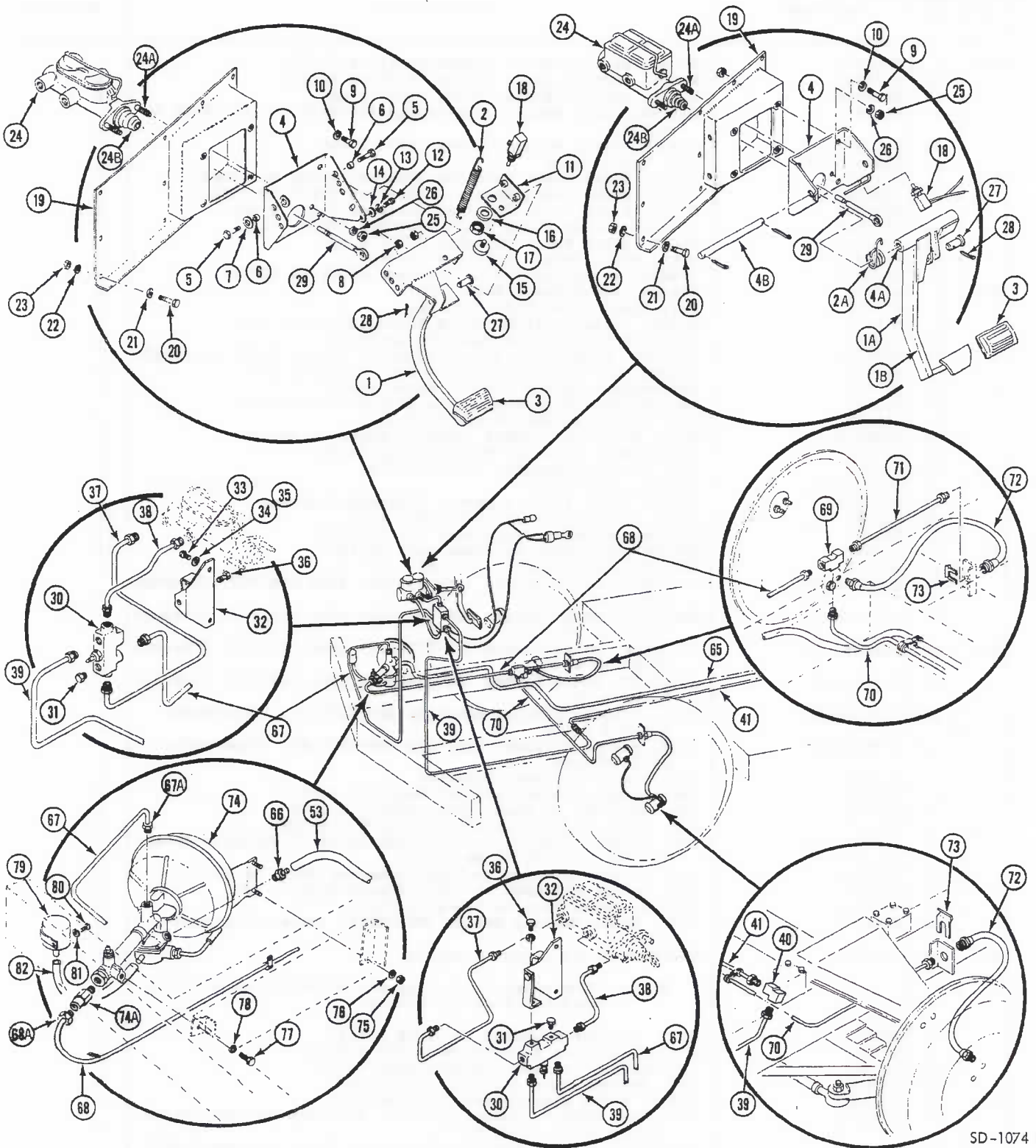
REPAIR PARTS LIST

GROUP 9
MODEL 2900R

FIG NO.	ITEM NO.	PART NUMBER	ITEM DESCRIPTION	QTY PER UNIT
9-1	1	5100196	PEDAL, Service Brake (Coach 00001 to 00871)	1
	1A	5107859	PEDAL, Service Brake (Coach 00872 to 01012)	1
	1B	5107055	PEDAL, Service Brake (Coach 01013 & up)	1
9-1	2	5106052	SPRING, Pedal Return (Supersedes 5101013) (Coach 00001 to 00871)	1
	2A	5107069	SPRING, Pedal Return (Coach 00872 & up)	1
	3	5100576-02	PAD, Brake Pedal	1
9-1	4	5100195	PLATE, Brake Pedal Mounting (Coaches 00001 to 00663)	1
		5107123	PLATE, Brake Pedal Mounting (Coaches 00664 to 01012)	1
		5107056	PLATE, Brake Pedal Mounting (Coaches 01013 & up)	1
9-1	4A	5107145	BUSHING, Brake Pedal Shaft (Coaches 00872 & up)	2
	4B	5107065	SHAFT, Brake Pedal (Coaches 00872 & up)	1
	5	M18023	BOLT, Brake Pedal (3/8-16 x 1-1/4)	2
9-1	6	5100574	SPACER, Brake Pedal Bolt (Coaches 00001 to 00871)	2
	7	M17023	WASHER, Brake Pedal Bolt (1/2)	2
	8	M17010	NUT, Brake Pedal Bolt (3/8-16)	2
9-1	9	M18024	SCREW, Brake Pedal Mounting Plate (3/8-16 x 3/4)	4
	10	M17007	LOCKWASHER, Mounting Plate Screw (3/8)	4
	11	5100197	BRACKET, Stop Light Switch Mounting (Coach 00001 to 01012)	1
9-1	12	M18005	SCREW, Stop Light Switch Bracket (1/4-20 x 3/4)	2
	13	M17024	LOCKWASHER, Switch Bracket Screw (1/4)	2
	14	M17045	WASHER, Switch Bracket Screw (1/4 x 0.006 thick)	2
9-1	14	M17040	NUT, Switch Bracket Screw (1/4-20)	2
	15	5100610	STOP, Mounting Bracket (Coaches 00001 to 00210)	1
	16	M17024	LOCKWASHER, Mounting Bracket Stop (1/4)	1
9-1	17	M17070	NUT, Mounting Bracket Stop (1/4-20)	1
	18	5101058-01	SWITCH, Stop Light (See Group 4)	1
	19	5100194	PLATE, Brake Pedal & Master Cylinder Mounting	1
9-1	20	M18030	BOLT, Mounting Plate (5/16-18 x 3/4)	11
	21	M17005	WASHER, Mounting Plate Bolt (5/16 flat)	11
	22	M17042	LOCKWASHER, Mounting Plate Bolt (5/16)	11
9-1	23	M17039	NUT, Mounting Plate (5/16-18)	11
	24	5100457-02	CYLINDER, Brake Master (BE-2228225) (See Fig 9-2) (Coaches 00001 to 00663)	1
	24	5106496-01	CYLINDER, Brake Master (BE-2231900) (See Fig 9-3) (Coaches 00664 to 00750)	1
9-1	24	5100457-02	CYLINDER, Brake Master (BE-2228225) (See Fig 9-2) (Coaches 00751 to 01012)	1
	24	5106496-01	CYLINDER, Brake Master (BE-2231900) (See Fig 9-3) (Coaches 01013 & up)	1
	24A	5106496-02	STUD, Master Cylinder Mounting (BE-2226977) (Supersedes 5100457-R015)	2
9-1	24B	5106496-03	BOOT, Master cylinder Mounting (BE-2225696) (Supersedes 5100457-R008)	1
	25	M17010	NUT, Master Cylinder Mounting	2
	26	M17007	LOCKWASHER, Master Cylinder Mounting (3/8)	2
9-1	27	M25094	PIN, Cylinder to Pedal Clevis (5/8 x 1.109)	1
	28	M25002	PIN, Brake Pedal Clevis Cotter (1/8 x 1-1/4)	1
	29	5100457-05	ROD, Master Cylinder to Pedal (BE-2225963) (Coaches 00001 to 00663 and 00751 to 01012)	1
9-1	29	5107124	ROD, Master Cylinder to Pedal (Coaches 00664 to 00750)	1
	29	5107720	ROD, Master Cylinder to Pedal (Coach 01013 & up)	1
	30	5100593	SWITCH, Brake Warning (MR-201001AV)	1
9-1	31	5100750	PLUG, Brake Warning Switch (WD-131X3) (Order plug with switch)	1
	32	5101484	BRACKET, Brake Switch Mounting	1
	NOTE: From coach 00066 & up above bracket also mounts windshield washer bottle.			
9-1	33	M18030	BOLT, Bracket Mounting (5/16-18 x 3/4)	2
	34	M17005	WASHER, Bracket Mounting bolt (5/16 flat)	2
	34	M17042	LOCKWASHER, Bracket Mounting Bolt (5/16)	2
9-1	35	M17039	NUT, Bracket Mounting Bolt (5/16 x 18)	2
	36	M18101	SCREW, Brake Warning Switch to Bracket	1
	37	5100939	TUBE ASSY W/NUTS, Master Cylinder to Brake Warning Switch (Coach 00001 to 00785)	1
9-1	37	5107785	TUBE ASSY W/NUTS, Master Cylinder to Brake Warning Switch (Coach 00786 to 01012)	1

REPAIR PARTS LIST

GROUP 9 Brakes - Service
 MODEL 2900 R

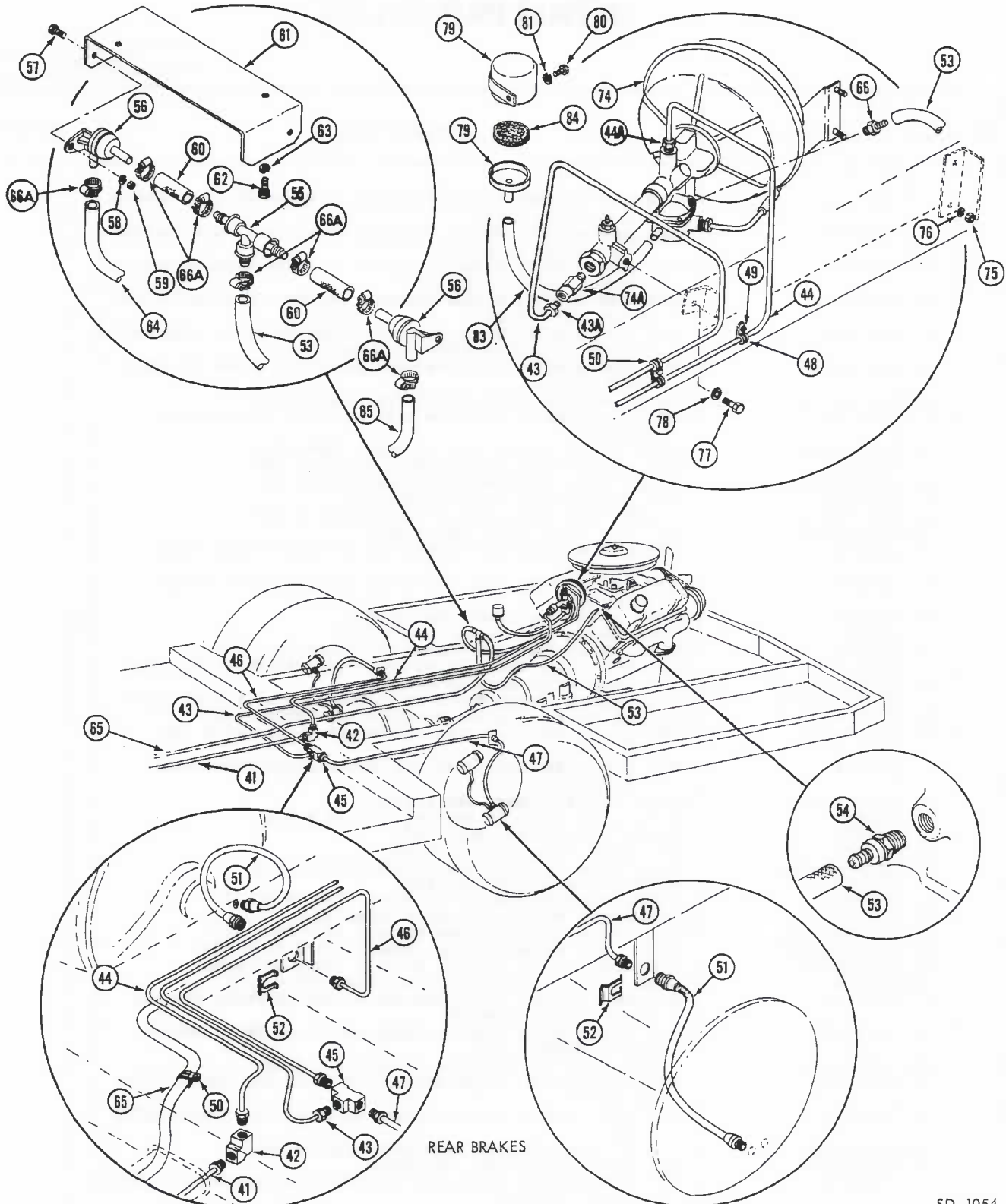


SD-1074

Figure 9-1. Service Brake System (Sheet 1 of 2).

REPAIR PARTS LIST

GROUP 9 Brakes-Service
 MODEL 2900R



REAR BRAKES

SD-1054

Figure 9-1. Service Brake System (Sheet 2 of 2)

REPAIR PARTS LIST

GROUP 9
MODEL 2900R

FIG NO.	ITEM NO.	PART NUMBER	ITEM DESCRIPTION	QTY PER UNIT
9-1	37	5107661	TUBE ASSY W/NUTS, Master Cylinder to Brake Warning Switch (Coach 01013 & up)	1
	38	5100937	TUBE ASSY W/NUTS, Master Cylinder to Brake Warning Switch (Coach 00001 to 00785)	1
	38	5107787	TUBE ASSY W/NUTS, Master Cylinder to Brake Warning Switch (Coaches 00786 to 01012)	1
	38	5107660	TUBE ASSY W/NUTS, Master Cylinder to Brake Warning Switch (Coach 01013 & up)	1
9-1	39	5107228	TUBE ASSY W/NUTS, Brake Warning Switch to Elbow (Supersedes 5100938) (Coaches 00001 to 00785)	1
	39	5107769	TUBE ASSY W/NUTS, Brake Warning Switch to Elbow (Coaches 00786 & up)	1
9-1	40	5101132-01	ELBOW, Brake Warning Switch Tube (WD-502X4)	1
	41	5107234	TUBE ASSY W/NUTS, To elbow rear of Coach (Supersedes 5100941)	1
	42	5101132-01	ELBOW, Brake Tubing Rear of Coach (WD-502X4)	1
	43	5100947	TUBE ASSY W/NUTS, Rear Booster to Frame Tee	1
	43A	5101142-01	NUT, Tube (Booster End-Coach 01013 & up)	1
	44	5100946	TUBE ASSY W/NUTS, Elbow to Booster	1
	44A	5101142-01	NUT, Tube (Booster End-Coach 01013 & up)	1
	45	5100747-01	TEE, Rear Brake Line (WD-702X4)	1
	46	5100950	TUBE ASSY W/NUTS, Rear Brake Tee to Right Wheel Frame Connection	1
	47	5100951	TUBE ASSY W/NUTS, Rear Brake Tee to Left Wheel Frame Connection	1
9-1	48	M22038	CLAMP, Hydraulic Brake Tube (1/4")	10
	49	M14037	SCREW, Brake Tube Clamp (#10 X 3/8)	10
	50	M22062	CLAMP, Brake Tube and Vacuum Hose Cushion (3/4)	6
	51	5100779-01	HOSE ASSY, Rear Wheel Frame Connection to Wheel Cylinder	2
	52	5100780-01	LOCK, Rear Brake Hose to Frame	2
	53	5100760-R036	HOSE, Engine Intake Manifold to Tee Vacuum (1/2 ID X 36)	1
	54	5100749	ADAPTER, Hose to Intake Manifold (WD-10008B-106)	1
	55	5100748-01	TEE, Engine Manifold Hose and Vacuum Check Valve (WD-24910K-Y50)	1
		M24123	TEE, Engine Manifold Hose and Vacuum Check Valve (ALT W/5100748-01)	1
	56	5100457-03	VALVE, Booster Check (BE-2511066)	2
9-1	57	M18005	BOLT, Check Valve to Bracket (1/4-20 X 3/4)	2
	58	M17024	WASHER, Check Valve Bolt (1/4)	2
	59	M17040	NUT, Check Valve Bolt (1/4-20)	2
	60	5100760-R003	HOSE, Check Valve to Tee Vacuum (1/2 ID X 3)	2
	61	5100936	BRACKET, Check Valve Mounting	1
	62	M18066	SCREW, Mounting Bracket to Panel (1/4-28 X 1/2)	2
	63	M17044	LOCKWASHER, Mounting Bracket Screw (1/4)	2
	64	5100760-R050	HOSE, Check Valve to Rear Booster (1/2 ID X 50)	1
	65	5100760-R372	HOSE, Check Valve to Front Booster (1/2 ID X 372)	1
	66	5100759-01	CONNECTOR, Vacuum Hose at Booster (PA-32882-8-8B)	2
66A	M22054	CLAMP, Booster Vacuum Hose to Frame (#8 X 1/2)	7	
9-1	67	5100940	TUBE ASSY W/NUTS, Brake Warning Switch to Front Booster (Coach 00001 to 00785)	1
	67	5107771	TUBE ASSY W/NUTS, Brake Warning Switch to Front Booster (Coach 00786 & up)	1
	67A	5101142-01	NUT, Tube (Booster End-Coach 01013 & up)	1
	68	5100949	TUBE ASSY W/NUTS, Front Booster to Front Tee (Coach 00001 to 00785)	1
	68	5107778	TUBE ASSY W/NUTS, Front Booster to Front Tee (Coach 00786 & up)	1
	68A	5101142-01	NUT, Tube (Booster End-Coach 01013 & up))	1
	69	5100747-01	TEE, Front Brake Line (WD-702X4)	1
	70	5107229	TUBE ASSY W/NUTS, Front Tee to Left Frame Connection (Supersedes 5100945)	1
	71	5100944	TUBE ASSY W/NUTS, Front Tee to Right Wheel Frame Connection	1
	72	5100778-01	HOSE, Front Wheel Frame Connection to Wheel Cylinder	2
9-1	73	5100780-01	LOCK, Front Brake Hose to Frame	2
	74	5100457-01	BOOSTER ASSY, Brake Front & Rear (BE-2504150) (Coaches 00001 to 00663 and 00751 to 01012) (See Service Bulletin 2909-10001	2

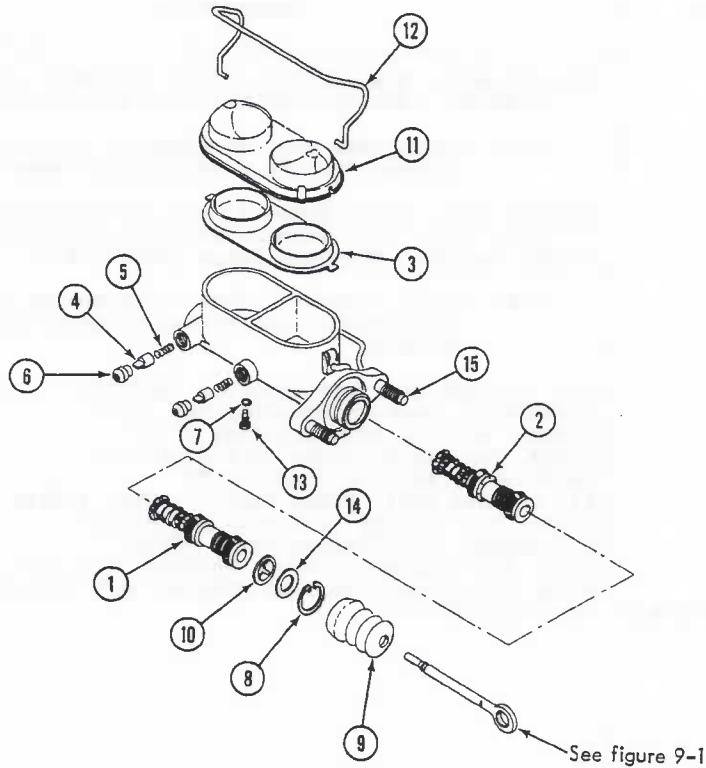
REPAIR PARTS LIST

GROUP 9
MODEL 2900R

FIG NO.	ITEM NO.	PART NUMBER	ITEM DESCRIPTION	QTY PER UNIT
9-1	74	5107135	BOOSTER ASSY, Brake-Front & Rear (2510813) (Coaches 99664 to 00750) (See Service Bulletin 2909-10001) NOTE: Above item must be replaced with 5107516 booster for all service replacement.	NS
	74	5107516	BOOSTER ASSY, Brake-Front & Rear (BE-2512065) (Coaches 01013 & up) (See Service Bulletin 2909-10001)	2
	74A	5106793-01	VALVE, Residual Pressure Check (BE-2226939) NOTE: Above item used with large master cylinder (5106496-01) and either booster 5107135 or 5107516)	2
	75	M17010	NUT, Booster to Frame Mounting (3/8-16)	4
	76	M17007	LOCKWASHER, Booster Mounting Nut (3/8)	4
	76	M17004	WASHER, Booster Mounting Flat (3/8)	4
	77	M18024	SCREW, Booster to Frame (3/8-16 x 3/4)	2
	78	M17007	LOCKWASHER, Booster torew (3/8)	2
	79	5100457-04	AIR CLEANER ASSY, Brake Booster-Front & Rear (BE-374732)	2
	80	M14037	SCREW, Air Cleaner to Frame (#10 x 3/8)	4
	81	M17047	LOCKWASHER, Air Cleaner Screw (#10)	4
	82	5100760-R024	HOSE, Air Cleaner to Front Booster (1/2 ID x 24)	1
	83	5100760-R015	HOSE, Air Cleaner to Rear Booster (1/2 ID x 15)	1
	9-1	84	Not Sold Separately (See 5100457-04)	

REPAIR PARTS LIST

GROUP 9 Brakes-Service
 MODEL 2900R



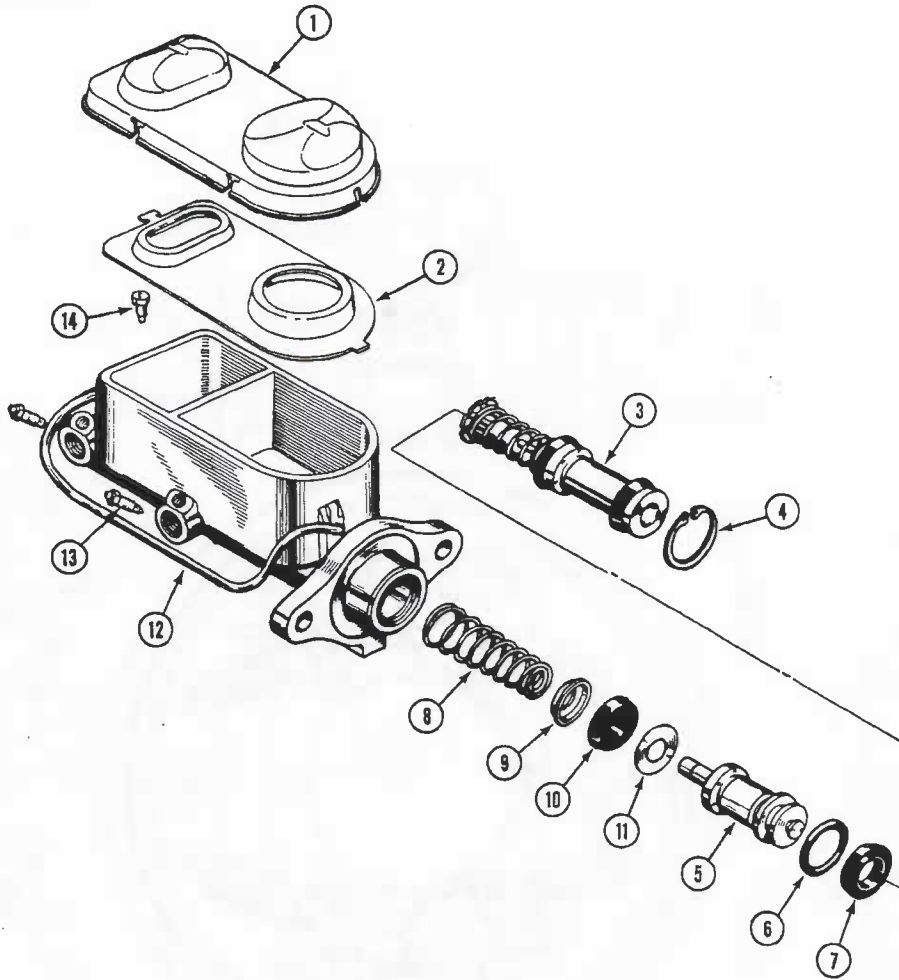
SD-204

Figure 9-2. Master Cylinder Assembly

FIG NO.	ITEM NO.	PART NUMBER	ITEM DESCRIPTION	QTY PER UNIT
			<u>COACHES 00001 - 00663 AND 00751 TO 01012</u>	
		5100457-02	<u>MASTER CYLINDER ASSY, Service brake (BE 2228225)</u>	1
		5100457-R001	<u>KIT, Master cylinder repair (BE 2226087)</u>	1
			<u>CONSISTS OF:</u>	
9-2	1		PISTON ASSY, Primary (BE 2226979)	NSS
	2		PISTON ASSY, Secondary (BE 2225703)	NSS
	3	5100457-R002	GASKET, Reservoir cover (BE 2225647)	1
	4	5100457-R003	VALVE, Residual pressure check (BE 618017)	2
9-2	5	5100457-R004	SPRING, Residual pressure check valve (BE 618014)	2
	6	5100457-R005	SEAT, Tube connect (BE 618047)	2
	7	5100457-R006	SEAL, Stop bolt "O" ring (BE 618038)	1
	8	5100457-R007	SNAP RING, Primary piston (BE 907684)	1
9-2	9	5106496-03	BOOT, Cylinder rod (BE 2225696) (sup. 5100457-R008)	1
	10	5100457-R009	RETAINER, Cylinder rod (BE 2226988)	1
		5100457-R010	SCREW, Self tapping (BE 617509)	2
	11	5100457-R011	COVER, Master cylinder (BE 2225646)	1
	12	5100457-R012	WIRE, Master cylinder cover bail (BE 2226844)	1
	13	5100457-R013	BOLT, Master cylinder stop (BE 2226859)	1
	14	5100457-R014	WASHER, Master cylinder rod retainer (BE 2226984)	1
9-2	15	5106496-02	STUD, Master cylinder mounting (BE 2226977) (sup. 5100457-R015)	2

REPAIR PARTS LIST

GROUP 9 Service Brake
 MODEL 2900R



SD-1037

Figure 9-3. Master Cylinder Assembly (Coaches 1013 and Up)

FIG NO.	ITEM NO.	PART NUMBER	ITEM DESCRIPTION	QTY PER UNIT
<u>MASTER CYLINDER COACHES 1013 AND UP</u>				
9-3		5106496-01	MASTER CYLINDER ASSY, Service brake (BE 2231900)	1
	1	5106496-R020	COVER, Cylinder (BE 2229043)	1
	2	5106496-R021	GASKET, Cylinder cover (BE 2229044)	1
	3	5106496-R022	PISTON ASSY, Cylinder primary (BE 2229086)	1
	4	5106457-R007	SNAP RING, Primary piston (BE 907684)	1
9-3	5	5106496-R023	PISTON ASSY, Cylinder secondary (BE 2229087)	1
	6	5106496-R024	SEAL, Secondary piston "O" ring (BE 2229089)	1
	7	5106496-R025	CUP, Secondary piston pressure (BE 2229088)	1
	8	5106496-R026	SPRING, Secondary piston (BE 2229094)	1
	9	5106496-R027	RETAINER, Secondary piston spring (BE 2229079)	1
9-3	10	5106496-R028	CUP, Secondary piston pumping (BE 2229078)	1
	11	5106496-R029	PROTECTOR, Secondary piston cup (BE 2229077)	1
	12	5106496-R030	BAIL, Cover wire (BE 2229046)	1
	13	5106496-R031	SEAT, Housing tube connection (BE 2230568)	1
9-3	14	5106496-R032	BOLT, Piston stop (BE 2227564)	1

REPAIR PARTS LIST

GROUP 9
MODEL 2900R

FIG NO.	ITEM NO.	PART NUMBER	ITEM DESCRIPTION	QTY PER UNIT		
<u>WHEEL BRAKE AND COMPONENT PARTS</u>						
9-4	1	5101167	BRAKE ASSEMBLY, Front & Rear LH (BE-3202928)	2		
	1	5101168	BRAKE ASSEMBLY, Front & Rear RH (BE-3202929)	2		
	2	M18016	BOLT, Front Brake Anchor Plate (1/2-20 x 1 1/2)	8		
		M17006	WASHER, Front Anchor Bolt (1/2)	4		
		M18052	BOLT, Front Brake Anchor Plate (1/2 x 20 x 1 3/4)	4		
		M17085	NUT, Front anchor Bolt (Replaces M17022)	8		
		M18037	BOLT, Rear Brake Anchor Plate (1/2-13 x 1)	4		
		M18036	BOLT, Rear Brake Anchor Plate (1/2-13 x 1 3/4)	4		
		M17006	WASHER, Rear Brake Anchor Bolt (1/2)	8		
		5101167-R024	PLATE W/ANCHOR BRACKET & STUDS, Backing LH (sup 5101167-R013) (BE-3202930)	1		
		5101168-R002	PLATE W/ANCHOR BRACKET & STUDS, Backing RH (sup 5101168-R001) (BE-3202931)	1		
		3	5101167-R002	SHOE AND LINING ASSY, Wheel brake (BE-321926)	2	
		4	5101167-R014	SHOE W/O LINING, Wheel brake (BE-321927)	2	
			5101167-R015	LINING SET, Wheel brake, front and rear wheels (BE-307910)	1	
	NOTE: Above set is lining with rivets for one set of wheels either front or rear.					
	9-4	5	5101167-R001	CYLINDER ASSY, Wheel (BE-2231165)	2	
		6	5101167-R016	SCREW AND LOCKWASHER, Wheel cylinder mounting (BE-48006)	4	
			7	5101167-R017	CUP, Wheel cylinder primary (BE-32792)	4
			8	5101167-R018	CUP, Wheel cylinder filler (BE-617699)	4
			9	5101167-R019	SPRING, Wheel cylinder cup (BE-2227462)	2
			10	5101167-R020	PISTON, Wheel cylinder (BE-2227461)	4
			11	5101167-R021	BOOT, Wheel cylinder (BE-617304)	4
			12	5101167-R022	SCREW, Wheel cylinder (BE-301198)	3
			13	5101167-R008	LINK, Wheel cylinder connecting (BE-321499)	4
		14	5101167-R007	COVER, Wheel cylinder (BE-302810)	2	
		15	5101167-R003	TUBE, Wheel cylinder connecting (BE-3202597)	1	
		16	5101561	CLIP, Wheel cylinder connecting tube	1	
		17	5101167-R004	SCREW, Shoe adjusting LH (BE-307897)	1	
		17	5101167-R005	SCREW, Shoe adjusting RH (BE-307898)	1	
		18	5101167-R006	SPRING, Shoe adjusting screw lock (BE-302809)	2	
		19	5101167-R011	COVER, Shoe adjusting hole (BE-11611)	2	
		20	5101167-R012	SPRING, Shoe anchor (red, BE-3200873)	2	
		21	5101167-R010	SPRING, Shoe anchor (gray, BE-302812)	2	
		22	5101167-R009	WASHER, Shoe anchor stud (BE-300044)	2	
		23	5101167-R023	NUT, Shoe anchor stud (3/8 x 24 castle) (BE-901799-K6)	2	
		24	M25093	PIN, Shoe anchor stud cotter (3/32 x 3/4) (BE-901221)	2	